

**IN THE UNITED STATES BANKRUPTCY COURT
FOR THE DISTRICT OF DELAWARE**

In re:)	Chapter 11
)	
FTX TRADING LTD., <i>et al.</i> ,)	Case No. 22-11068 (JTD)
)	(Jointly Administered)
Debtors.)	
)	Re: D.I. 5202

MEMORANDUM OPINION AND ORDER

Bankruptcy courts are often called upon to estimate the value of claims against a debtor’s estate. It can frequently be an arduous task involving competing expert witnesses applying different methodologies reaching vastly different conclusions. This is one of those cases. Here, FTX Trading Ltd. (“**FTX**”) and its affiliates (collectively, “**Debtors**”) seek to estimate the value of certain cryptocurrencies held by the Debtors for the benefit of several third parties. As with any estimation, the value of the claims must be determined as of the petition date as if the bankruptcy had never occurred. 11 U.S.C. § 502(b). No bankruptcy court has ever estimated the value of cryptocurrency-based claims, nor, as far as I can determine, has any court ever conducted a valuation of crypto type assets. Estimation of the claims here, therefore, presents a matter of first impression.

Valuing cryptocurrencies is complicated by a number of factors. First, cryptocurrencies have no inherent value. Unlike corporate stock, which is backed by hard assets held by the company, or fiat currency that is back by the issuing government entity, cryptocurrencies are only worth what someone is willing to pay for them on any given day. They trade solely on sentiment, similar to artwork or baseball cards. That is, someone purchases a coin or token because the buyer believes it will increase in value over time. When the buyer believes the coin

or token will decrease in value, it is sold. There is, therefore, no underlying value to help inform the market value of these assets.

Second, over 20,000 different types of cryptocurrencies have been created in the last ten years. Unlike standard equity trading, which occurs across only a handful of heavily regulated exchanges, cryptocurrencies are traded on more than 1500 exchanges and regulation has been described as somewhere between sparse and non-existent. This raises questions about the reliability and trustworthiness of the sources from which valuation data is obtained.

Third, in this case, most of the tokens held by the Debtors as of the Petition Date could not be sold. Instead, the tokens are subject to a contractual obligation to keep the tokens “locked” until a future date. Pursuant to the contract, tokens will be unlocked on a daily basis over several years. This raises questions about how to value the locked tokens.

Fourth, while the objecting creditors here lay claim to millions of the three tokens at issue, it is the Debtors who own the vast majority of the supply. The Debtors take the position that to determine the value of the tokens, any analysis must consider that both the Debtors’ and the creditors’ tokens would be sold as they became unlocked. The creditors’ position is that only their tokens should be considered in analyzing the value.

Despite these challenges, the Debtors and the Creditors presented expert testimony in an attempt to establish an estimated value for the tokens. The Debtors’ experts concluded that two of the three tokens were worth nothing as of the petition date and the third was worth less than half of its market value. The creditors’ experts concluded that the tokens had a value in the hundreds of millions of dollars. The parties’ disparate conclusions about the value of the tokens at issue here is owing, at least in part, to the fact that none of the experts valued the same thing. Consequently, in many respects the competing valuations cannot be easily compared to one

another, nor can they be easily modified to adjust specific concerns. Nevertheless, as discussed below, while I find that the initial valuations offered by each of the experts are flawed, I am satisfied that the sensitivity analysis performed by the Debtors' expert adequately addresses my concerns and provides a reasonable basis for an estimated value of the tokens that are the subject of the claims.

BACKGROUND

In early November 2022, cryptocurrency news outlet CoinDesk published an article raising concerns about cryptocurrency exchange FTX's leadership, its management of assets, and its close relationship with its sister companies.¹ Newfound concern quickly led masses of FTX customers to withdraw their assets from the exchange, causing the exchange to crash in a matter of days. In response to this severe liquidity crisis, the Debtors filed for relief under chapter 11 of the Bankruptcy Code (the "**Code**") on November 11, 2022 ("**Petition Date**").²

Since filing, the Debtors have received millions of claims seeking to recover the value of the cryptocurrency assets (the "**Digital Assets**") held by the Debtors. These claims are asserted in quantities of digital assets (the "**Digital Asset Claims**"). Pursuant to Section 502(c) of the Code, the Debtors filed a motion seeking to estimate the value of the Digital Asset Claims in order to provide creditors with recovery estimates, solicit votes on the plan of reorganization, and ultimately make distributions pursuant to the plan (the "**Estimation Motion**").³

¹ See Ian Allison, *Divisions in Sam Bankman-Fried's Crypto Empire Blur on His Trading Titan Alameda's Balance Sheet*, COINDESK (Nov. 2, 2022), <https://www.coindesk.com/business/2022/11/02/divisions-in-sam-bankman-frieds-crypto-empire-blur-on-his-trading-titan-alamedas-balance-sheet>.

² Chapter 11 Voluntary Petition, D.I. 1.

³ Motion of Debtors to Estimate Claims Based on Digital Assets, D.I. 5202.

The First Estimation Hearing

In their Estimation Motion, the Debtors argued that the Digital Asset Claims were unliquidated, and that the liquidation of each individual claim would be impractical, unnecessary, and would unduly delay these chapter 11 proceedings. Debtors proposed to instead use a Digital Asset Conversion Table (the “**Conversion Table**”) that provides a means for converting each of the Digital Assets into U.S. Dollars, thereby providing a quick and efficient basis for Debtors to calculate the value of the Digital Asset Claims.⁴

The initial hearing on the Estimation Motion was conducted on January 31, 2024. Debtors presented two expert witnesses who testified about the market prices of the Digital Assets on the Petition Date (“**Debtors’ Spot Prices**”) and about adjustments that needed to be made to Debtors’ Spot Prices due to the fact that some of the Digital Assets were: (1) extremely illiquid; and/or (2) subject to restrictions that precluded their sale until a certain date.⁵ The Conversion Table, offered by the Debtors as a “key” to estimating the Digital Asset Claims, is the result of the Debtors’ experts’ calculations.⁶

While there were numerous objections made to the Estimation Motion, none of the objectors offered any evidence of their own regarding the value of the Digital Asset Claims. Consequently, following argument and consideration of the evidence presented, I overruled all initial objections to the Estimation Motion and held that: (1) estimation of the Digital Asset Claims is appropriate, and (2) with respect to the tokens then at issue, the Debtors’ methodology for estimating the claims was fair and reasonable (the “**Initial Estimation Ruling**”).⁷

⁴ *Id.*

⁵ Estimation Motion, D.I. 5202 at 14; Howell Declaration, D.I. 5203, at 2.

⁶ January 31 Hearing Transcript, D.I. 6908. The opinions of Debtors’ experts are discussed in greater detail below.

⁷ *Id.* at 128-31. See also Order Granting Estimation Motion, D.I. 7090.

Prior to the January hearing, the Debtors had agreed to defer the objections of three parties until a hearing on a later date. Those parties are: Maps Vault Limited (“**Maps Vault**”), TMSI SEZC Ltd. (“**TMSI**”), and Fondation Serendipity, Fondation Elements, Serendipity Network Ltd. and Liquidity Network Ltd. (together, “**Fondation**”) (collectively, the “**Objectors**”).⁸ The Initial Estimation Ruling therefore left open the question of whether the values set forth in the Debtors’ Conversion Table would apply to the tokens held by the Objectors: MAPS, OXY, and SRM (the “**Tokens**”).⁹

The At-Issue Tokens

Cryptocurrency tokens fall within many different categories. Some, such as Bitcoin, are categorized as “transactional tokens,” and are used as a payment method. Others, such as those at issue here, are categorized as “utility tokens” and serve specific functions on their respective blockchains.¹⁰ MAPS, for example, is a utility token specifically designed for use within the Maps.me platform, an offline mapping and travel-booking application. Its value is derived from its potential to unlock various benefits and functionalities within the application. Token holders can earn and redeem MAPS tokens for various benefits within the Maps.me application, including discounts on accommodation bookings and travel services, personalized promotions and exclusive offers, and priority access to features and services within the application. The total

⁸ D.I. 5617, D.I. 5620, and D.I. 5626.

⁹ While a fourth token, BOBA, was initially also excluded from the Initial Estimation Ruling, the Boba Foundation ultimately decided to accept the proposed estimations based on BOBA tokens. March 26 Hearing Transcript, D.I. 10955 (“**March 26 Transcript**”, at 111-112 (“Boba Foundation has elected not to dispute the proposed estimations of its claims and will abide by the Court’s ruling on estimation issues.”)).

¹⁰ *Cryptocurrency Explained with Pros and Cons for Investment*, available at <https://www.investopedia.com/terms/c/cryptocurrency.asp>.

supply of MAPS tokens is limited, which is supposed to ensure scarcity with the goal of potentially contributing to long-term value appreciation.¹¹

OXY, another utility token, is designed for use within the Oxygen Protocol ecosystem. The main objective of the Oxygen Protocol is to provide users with a more accessible and efficient alternative to traditional prime brokerage services. Like MAPS, OXY's value is derived from its role in accessing platform features, governance participation and earning rewards. Also like MAPS, the total supply of OXY is capped to create scarcity, which is intended to create long-term value appreciation.¹²

The SRM token is the native utility token of the Serum “decentralized exchange” or “DEX”, which is akin to a digital flea market for cryptocurrencies. SRM plays a role in the Serum platform, by functioning as a payment token (trading fees are paid in SRM), governance token (SRM holders influence the protocol's future development), staking token (SRM can be locked for a period of time to earn rewards) and discount token (SRM holders receive discounts on trading fees).¹³

The Second Estimation Hearing

A second hearing on the Estimation Motion was held over the course of three days in March 2024, at which time the Debtors' experts offered additional testimony in support of their proposed valuation and the Objectors offered competing valuations. Experts for both sides also testified extensively about their critiques of the valuations offered by the opposing party.¹⁴

¹¹ Expert Report of Fotios Konstantinidis (“**Konstantinidis Report**”), FTX 4 at 7-8.

¹² *Id.*

¹³ *Id.*

¹⁴ The Objectors also filed motions *in limine* seeking to exclude Professor Howell's testimony. D.I. 9618. I deferred ruling on the motions until after trial but have now considered each of these motions in light of the testimony received. They are denied.

Debtors first offered the testimony of Kevin Lu (“**Mr. Lu**”), Director of Data Science and Product at Coin Metrics. Mr. Lu testified regarding the Debtors’ Spot Prices for the tokens that are the subject of the Digital Asset Claims.¹⁵ Mr. Lu determined the baseline prices by first selecting what he believed to be trusted exchanges and generating high quality constituent markets for each Digital Asset. Following his selection of trustworthy markets, Mr. Lu calculated the price of each digital asset using a weighted-median approach, with weights derived from the 60-minutes immediately preceding the petition time.¹⁶

Debtors next offered the testimony of Sabrina T. Howell (“**Professor Howell**”), Professor of Finance at NYU Stern School of Business. Professor Howell was employed by the Debtors to assist with determining the value, as of the Petition Date, of the 1,321 digital assets and fiat currencies that are the subject of the Digital Asset Claims. This includes determining (1) the discount at which the Debtors would have been able to sell their holdings in an orderly liquidation commencing on the petition date (the “**Asset Liquidation Discount**” or “**ALD**”); and (2) the discount that would have applied to cryptocurrencies claimed by the Debtors’ customers that were not marketable (e.g., “locked digital assets”) as of the Petition Date (the “**Discount for Lack of Marketability**” or “**DLOM**”).¹⁷

Professor Howell adopted and applied as her methodology the model put forward by Albert Kyle and Anna Obizhaeva (the “**KO Model**”) in their 2016 paper *Market Microstructure Invariance: Empirical Hypotheses*.¹⁸ Professor Howell testified that “the purpose of the KO Model is to calculate the transaction costs from a decision to take a position in a market of a

¹⁵ Estimation Motion at 14; Lu Declaration, D.I. 5204, at 4.

¹⁶ Lu Declaration ¶ 46.

¹⁷ Expert Report of Sabrina Howell, D.I. 5203 (“**Howell Report**”) at 2-3.

¹⁸ Howell Report ¶ 68 (citing Albert S. Kyle & Anna A. Obizhaeva, *Market Microstructure Invariance: Empirical Hypotheses*, 84 *ECONOMETRICA* 1345 (2016)).

certain size.”¹⁹ Specifically, it is premised on the basic idea that when a large position in an asset is being liquidated into the market, it puts downward pressure on the price of the asset.²⁰ The KO model accounts for this downward pressure by calculating the “price impact cost” and “bid-ask spread cost” of the liquidation, which together represent what KO refer to as a “transaction cost” or what Professor Howell referred to as the ALD.

Applying this methodology, Professor Howell determined that in an orderly liquidation commencing on the Petition Date, certain of the Digital Assets would likely have been sold at average prices below the prevailing market prices. Professor Howell concluded that an ALD exceeding 10% of the market price would affect 71 of the Digital Assets held by the Debtors and claimed by customers.²¹ For the Tokens at issue here, Professor Howell’s analysis resulted in a suggested ALD of 100% for MAPS and OXY tokens and 58% for SRM.²²

In addition to applying an ALD to all Tokens, for the subset of Tokens that are locked, Professor Howell also applied a DLOM.²³ Professor Howell calculated the DLOM for these Tokens using an option pricing model, which resulted in additional discounts of between 42-43% for MAPS, 37-40% for OXY, and 32% for SRM.²⁴

In response to the evidence submitted by the Debtors, the Objectors presented the testimony of their own experts. MAPS Vault and Serendipity Foundation retained Mr. Fotios Konstantinidis (“**Mr. Konstantinidis**”), Managing Director of Digital and Data Analytics at Stout Risius Ross, LLC to opine on the value of MAPS, OXY, and SRM tokens on the Petition

¹⁹ Transcript of March 20, 2024 Hearing (“**March 20 Transcript**”), D.I. 10152 at 146.

²⁰ Howell Report ¶ 68.

²¹ *Id.* ¶¶ 13, 63-71. Professor Howell testified that no ALD was necessary for fiat currency positions, stablecoins, tokenized stocks, or futures.

²² March 20 Transcript at 115.

²³ March 20 Transcript at 114. Locked Tokens are ones that do not become freely tradable until they vest, which occurs over a predetermined, asset-specific schedule.

²⁴ Howell Report, D.I. 5203 at 44-47.

Date. Mr. Konstantinidis disagreed with nearly all aspects of Professor Howell's approach, except for the fact that some discount to the spot prices would be necessary.²⁵

Mr. Konstantinidis testified that a party can liquidate its holdings without causing a significant change in price if it does so gradually, which he opined could be as much as 10% of the daily trading volume of a digital asset per day.²⁶ To determine the appropriate volume for the MAPS, OXY, and SRM tokens, Mr. Konstantinidis analyzed the volume trends of twenty comparable cryptocurrencies.²⁷ To establish the price of an individual token as of the Petition Date, Mr. Konstantinidis collected input data from CoinMarketCap API, an established data aggregator for cryptocurrency. Mr. Konstantinidis then took this data on price and volume to analyze whether any discount must be applied to the MAPS, OXY, and SRM tokens.

Questioning the appropriateness of Professor Howell's usage of a transaction cost model, Mr. Konstantinidis applied instead the "blockage discount method" (the "**Blockage Method**") to determine the value of the Tokens assuming a gradual liquidation. Specifically, Mr. Konstantinidis calculated the value of the Tokens by taking an average of two models: that put forward by David Chaffe (the "**Chaffe Model**") and that put forward by John Finnerty (the "**Finnerty Model**").²⁸ Applying these models, Mr. Konstantinidis recommended discounts of between 36% and 46% for the MAPS, OXY, and SRM tokens.²⁹

²⁵ Transcript of March 25, 2024 Hearing ("**March 25 Transcript**"), D.I. 10953 at 163-64.

²⁶ Konstantinidis Report, FTX 4 at ¶ 41-42.

²⁷ *Id.*

²⁸ March 25 Transcript at 79; Konstantinidis Report at ¶ 43, citing David B. Chaffe, "Option Pricing as a Proxy for Discount for Lack of Marketability in Private Company Valuations," Business Valuation Review 12 (December 1993): 182-88 and Finnerty, John D. "An Average-Strike Put Option Model of the Marketability Discount." The Journal of Derivatives 19, no. 4 (2012): 53-69.

²⁹ Konstantinidis Report, FTX 5 at ¶ 24 and FTX 4 at ¶ 49. Specifically, Mr. Konstantinidis concluded that the appropriate discounts as of the Petition Date should be: (1) for Fondation's holdings: MAPS 43.2% and OXY 35.8%-36.4%; (2) for Maps Vault's holdings: MAPS 45.4% and SRM 45.9%; and (3) for Oxygen's holdings: OXY 36.8% and SRM 45.9%.

Objector TMSI retained its own expert, Ioannis Gkatzimas (“**Mr. Gkatzimas**”), Principal at The Brattle Group, to opine on Professor Howell’s conclusions with respect to the valuation of SRM tokens on the Petition Date.³⁰ Mr. Gkatzimas used the KO Model adopted by Professor Howell, but he arrived at different results because he included the trading volume in the perpetual futures market, which Professor Howell did not, and he also calculated the value of only TMSI’s holdings, and did not consider the Debtors’ holdings. With these input changes, Mr. Gkatzimas concluded that KO Model suggests the SRM tokens should be discounted by approximately 12.47%, as opposed to Professor Howell’s estimate of approximately 58%.³¹

LEGAL STANDARDS

Section 502(c) of the Code requires the estimation of “any contingent or unliquidated claim, the fixing or liquidation of which, as the case may be, would unduly delay the administration of the case.” 11 U.S.C. § 502(c)(1). This mechanism is designed to streamline the claims process in cases where the fixing or liquidation of contingent or unliquidated claims may take an excessive amount of time. *In re RNI Wind Down Corp.*, 369 B.R. 174, 191 (Bankr. D. Del. 2007). Once a court determines that estimation is required, the Code leaves substantial discretion to the court in determining the appropriate means to estimate the claims. *In re Specialty Prods. Holding Corp.*, No. 10-11780, 2014 WL 545780, at *1 (D. Del. Feb. 7, 2014). “Congress intended the procedure to be undertaken initially by bankruptcy judges, using whatever method is best suited to the particular contingencies at issue.” *Bittner v. Borne Chem. Co.*, 691 F.2d 134, 135 (3d Cir. 1982). The court “is bound by the legal rules which may govern the ultimate value of the claim,” and “[t]he principal consideration must be an accommodation to the underlying purposes of the Code.” *Id.* See also *In re Armstrong World Indus.*, 348 B.R. 111,

³⁰ Declaration of Ioannis Gkatzimas (“**Gkatzimas Report**”), FTX 8, ¶ 7.

³¹ Compare Gkatzimas Report at ¶ 9(a) and Exhibit 3 of Howell Declaration, D.I. 5203-1, at 92.

123 (D. Del. 2006) (“The only requirement is that the value of the claim be determined in accordance with the legal rules that will govern the final amount of the claim, and ‘there are no other limitations on the court's authority to evaluate the claim save those general principles which should inform all decisions made pursuant to the Code.’”) (quoting *Bittner*, 691 F.2d at 136). “[W]here there is sufficient evidence on which to base a reasonable estimate of the claim, the bankruptcy judge should determine the value.” *Id.*

Importantly, “the estimation process is not a final liquidation of the claim.” *In re John Q. Hammons Fall 2006, LLC*, No. 16-21142, 2017 Bankr. LEXIS 3550, at *16-17 (Bankr. D. Kan. Oct. 13, 2017) (“[T]he estimate is not a finding or fixing of an exact amount.”). Rather, “[i]t is merely the court's best estimate for the purpose of permitting the case to go forward.” *Id.*

ANALYSIS

I. The Question Presented

Before I delve into a discussion of how to estimate the Digital Assets, it is necessary to address the question of what exactly is being estimated, as the parties have very different views on the subject.

As noted above, this case presents several highly unique circumstances. Chief among them, with respect to the Motion before me, is the fact that the Debtors hold nearly all of the outstanding supply of the Tokens at issue. Specifically, as of the Petition Date, the Debtors hold over 99% of all MAPS tokens, over 97% of all OXY tokens, and over 95% of all SRM tokens.³² As a result, the number of Tokens being traded in a given day (the “**Daily Trading Volume**”) is unusually low.³³ Because the market for these assets is so small, it has a limited ability to absorb

³² Rebuttal Expert Report of Sabrina Howell (“**Rebuttal Report**”), FTX 6, at 8-13.

³³ March 20 Transcript at 117 (“[T]he debtors are holding more than 95 percent of total token supply, and only about 1 to 3 percent of that total token supply is freely trading in markets.”).

sales. Consequently, any increase in trading is likely to have a negative impact on the price of the asset.³⁴ To account for this fact, the value assigned to the Tokens at issue must be discounted from the market price.³⁵

While the parties agree that a discount is necessary, they disagree on what needs to be considered in calculating that discount. On the one hand, the Debtors contend that a proper valuation needs to look at the entire supply of each Token, taking into consideration the impact that the liquidation of the Debtors' holdings would have on the market prices. As such, the Debtors' expert determined the liquidation value of the entire supply of Tokens.³⁶ On the other hand, the Objectors believe that a proper valuation should value only the Tokens held by each creditor, without any consideration of the Debtors' holdings. Accordingly, the Objectors' experts valued only the holdings of the individuals that retained them.³⁷ I agree with the Debtors.

The Objectors' primary argument in support of their limited valuation approach is that the Code requires that the valuation be conducted "as of the Petition Date," and because the Debtors had not liquidated their holdings as of that time, they need not be considered. But while it is true that the value of the claims must be determined "as of the Petition Date,"³⁸ it need not

³⁴ See Supplemental Howell Declaration, FTX 3 at ¶ 12 (Professor Howell explaining that each Digital Asset has a market with a finite amount of liquidity, or ability to absorb sales. With a sufficiently large quantity for sale, demand becomes exhausted and further sales are impossible.).

³⁵ March 25 Transcript at 74-75 (Mr. Konstantinidis testifying that "the token holdings are higher than the daily trading volumes. So, they cannot be absorbed in the market in a day. So naturally there is going to be a discount.").

³⁶ March 25 Transcript at 6; March 20 Transcript ("It's my understanding that the debtor would be liquidating all of its holdings of digital assets and my assignment was to assess the likely impact on the price from that -- from an orderly liquidation process in which all of the holdings are liquidated.").

³⁷ See, e.g., March 25 Transcript at 70 ("I was asked to value the tokens that were held by the entities.").

³⁸ 11 U.S.C. § 502(b). As noted above, because of the number of claims in this case, and the innumerable differences among them, it is not possible to directly estimate the value of the claims in this proceeding.

be determined in a vacuum. An estimated value that ignores the facts and circumstances in existence at that time of the Petition Date – specifically, that the Debtors’ hold most of existing supply of Tokens at issue -- would be of limited value.

The practical impact of the fact that Debtors hold more than 95% of the existing supply of the Tokens is that any changes the Debtors make with respect to their holdings of these Tokens will have an immediate effect on the market.³⁹ To estimate the value of the Objectors’ Tokens without consideration of this fact would result in a vastly inflated value that would not accurately reflect existing market conditions. Such an estimate would, in contradiction to the requirements of the Code, lack a reasonable basis. For this reason, it is both appropriate and necessary to consider the Debtors’ holdings in determining the value of the Tokens.

Accordingly, the question to be answered here is what is a reasonable discount to be applied to the Petition Date market price for each of the Tokens in light of the fact that the Debtors hold 95% of the supply?

II. Appropriate Methodology

Now that I have established what needs to be valued, the next question is how such valuation should be conducted. The parties spent a considerable amount of time debating which methodology is the “right” one to use for valuing digital assets. As I noted above, however, the valuation of cryptocurrency assets is largely uncharted territory and, as such, there is little basis to state with any degree of certainty what approach is the correct approach. Nevertheless, it is clear that with respect to the task at hand and the unique circumstances of this case, one of the two options presented here is more useful than the other.

Instead, we are estimating the value of the assets that are the subject of those claims, for use in a conversion chart, which will then be used to calculate the value of the claims.

³⁹ See Rebuttal Report at 9 (“[L]iquidating even a small fraction of the Debtors’ holdings would have quickly overwhelmed the available liquidity in the market for MAPS.”).

A. The KO Model

Professor Howell was asked by the Debtors to “to assess the likely impact on prices from liquidating the debtors’ holdings in order to estimate a reasonable market price for assets subject to customer claims and use that to assign a value to customer claims.”⁴⁰ Given the Debtors’ sizeable holdings, Professor Howell chose the KO Model, which she described as a universal formula for determining the market impact from selling or potentially buying a large position, which may be implemented across many trades.⁴¹

But as Professor Howell concedes, the purpose of the KO Model is not necessarily to value an asset. Rather, it is to calculate the transaction costs from a decision to take a position in a market of a certain size.⁴² As Mr. Konstantinidis explained, these are two different things:

Transaction costs describe a market. They don't describe an asset. Valuation discount is asset-specific. And what that means is . . . , transaction costs will be different in New York in the New York Stock Exchange, will be different in NASDAQ, will be different in cryptocurrency exchanges like Coinbase, Kraken, Binance. Every market will have its own transaction costs. Valuation is asset-specific. I sell Maps on Gate.io. I'll get the same discount if I sell it to Kraken or Coinbase exchanges.⁴³

Accordingly, Mr. Konstantinidis suggests, the KO Model is not designed to be used in a situation like the one here, where we are seeking a discount that is applicable across markets:

Q. What's wrong with Professor Howell's use of the KO model?

A. This model is not used for what it's supposed to be used. Again, that model tries to understand when I sell a large number of shares on a day, what happens to the market? What are the transaction costs which is broken down into bid-ask spread and the price impact. That's what it does. That's why the use case is, okay,

⁴⁰ March 25 Transcript at 6; March 20 Transcript (“It's my understanding that the debtor would be liquidating all of its holdings of digital assets and my assignment was to assess the likely impact on the price from that -- from an orderly liquidation process in which all of the holdings are liquidated.”).

⁴¹ March 20 Transcript at 118

⁴² March 20 Transcript at 145-46.

⁴³ March 25 Transcript at 101.

let's try to understand and predict market crashes. That model should not be used for valuing assets and calculating discounts.⁴⁴

Additionally, as Mr. Konstantinidis testified, the KO Model has not previously been used for the purpose it is being used for here.⁴⁵ I find these criticisms to be persuasive.

While Professor Howell is correct that the sale of Debtors' holdings will inevitably have an impact on the price of the at-issue Tokens, the evidence suggests that the KO Model is not well-suited to quantify that impact as a discount to the market price. In several respects, the KO Model outputs themselves lead to this conclusion. For example, for several of the Digital Assets, the model concludes that the appropriate discount is one far in excess of 100%.⁴⁶ Mr. Konstantinidis testified that this confirms that the model is not calculating a discount:

Q: And in your view, does a discount above 100 percent and in some cases significantly above 100 say anything about the model that produced it?

A: Well, that means that the model doesn't calculate discounts and the model says itself, these are transaction costs."⁴⁷

Professor Howell does not dispute that these numbers reflect transaction costs, but she insists they remain relevant here. The fact that the resulting discount is above 100%, she states, simply demonstrates the "extreme illiquidity" of these assets.⁴⁸ She goes on to explain that she does not

⁴⁴ See March 25 Transcript at 98. See also March 25 Transcript 143-44 ("Q. And in Professor Howell's application of the KO model, does she treat a transaction cost as the same thing as a discount? A. Professor Howell is using the term asset liquidation discount, ALD. Q. And are you aware of any finance, economics, or valuation article that treats a cost as the same thing as a discount? A. No.").

⁴⁵ March 25 Transcript at 154.

⁴⁶ March 20 Transcript at 155-56; *Id.* at 189-90 (testifying that in some cases the model produced discounts in excess of 10,000%).

⁴⁷ See March 25 Transcript at 146. See also March 25 Transcript at 148-49 ("Q. [D]id Professor Howell conduct any meaningful analysis to convert the transaction cost output from any of those models to an actual discount? A. No, but like I said before, it's not trivial. . . . [I]t's not trivial to find a recipe to transform transactional costs into a discount. They may be related, but it's not easy to find that relationship. Q. But she didn't try to bridge that gap at all? A. No, she didn't.").

⁴⁸ March 20 Transcript at 154 ("What the KO formula is producing is a transaction cost, a cost of selling the unit and specifically it's a sort of percent of the price. So, what its saying when the result is more than a hundred percent is that there is an extreme situation of illiquidity where, you know, the holdings are grossly exceeding the regular volume of the market that you are selling into.").

believe that discounts in excess of 100% indicate a problem with the KO Model because it “is not theoretically impossible” for the cost of selling an asset to be more than that asset is worth.⁴⁹ But there are two problems with this explanation. First, while in the abstract it is certainly true that some assets cost more to sell than they are worth, there is nothing in the record before me that explains how exactly the transaction costs for these specific assets exceed the assets’ value by such significant amounts. Second, if the discounts in excess of 100% merely demonstrate the degree of illiquidity of these assets, as Professor Howell suggests, then why truncate them without explanation? Professor Howell testified, upon cross examination on this issue, that she reduced the discounts to 100% because it would be inappropriate to assign a negative value to the Tokens.⁵⁰ I agree with that conclusion. But the fact that the “discounts” put out by the KO Model required any *ex post facto* adjustment in order for them to make sense here just further supports the conclusion that the KO Model is not the best tool for the job.

Additionally, as Professor Howell acknowledged, the KO Model is limited in that it only assesses the impact on an asset due to illiquidity. It does not account for other reasons that an asset might not be marketable, such as the fact that it is subject to restrictions regarding its sale (*i.e.* it is “locked”).⁵¹ As such, Professor Howell needed to apply a second discount to the Tokens that were locked.⁵² But, as Mr. Konstantinidis testified, this results in the locked tokens being undervalued because they are essentially penalized twice.⁵³ Further, as Mr. Konstantinidis

⁴⁹ March 20 Transcript at 155 (“So, again, I am estimating transaction costs from trying to liquidate the holdings. So, I am saying it's not actually impossible that the cost of selling an asset worth \$100 could cost \$200. That is not theoretically impossible.”).

⁵⁰ March 20 Transcript at 155.

⁵¹ March 20 Transcript at 167-68 (testifying that the KO formula is not a discount for lack of marketability); March 20 Transcript at 192 (testifying that the KO Model measures illiquidity); March 20 Transcript at 192 (testifying that DLOM that she applied does not have anything to do with liquidity).

⁵² March 20 Transcript at 113.

⁵³ March 25 Transcript at 107 (“Q And what happens when you apply both of those discounts, the DLAM and the ALD, we'll call it? A I mean, you penalize, especially, the locked tokens twice.”).

testified, DLOMs generally account for all of the reasons why an asset may not be marketable, including illiquidity.⁵⁴ As such, it is not necessary to apply a second discount to account for illiquidity alone. I agree. The fact that the KO Model requires two discounts further supports the conclusion that it is not the correct methodology here.

For these reasons, I find the KO Model is not the appropriate methodology to estimate the discount to be applied to the Tokens at issue.⁵⁵

B. The Blockage Method

The Objectors' expert, Mr. Konstantinidis, valued the assets using the Blockage Method. As Mr. Konstantinidis testified, the Blockage Method applies a specific valuation date (here the Petition Date), but also recognizes that one cannot sell the entirety of a large holding on a single date without rendering an otherwise valuable asset worthless:

The blockage discount method is a method that was invented in the 80's. It was sort of an agreement between the tax court and the valuation practitioners that realized for large holdings it doesn't make any sense to sell everything on the valuation date. You need to follow a phased liquidation approach, what we call in valuation theory a dribble-out method. So, everything is sold gradually for the certain period of time and then you go back on the petition date and apply the discount.⁵⁶

In contrast to the KO Model, the Blockage Method is a generally accepted methodology for determining the value of an asset as of a single date.⁵⁷

⁵⁴ See March 25 Transcript at 79 (noting that Chafee and Finnerty models, which he applied, “measure marketability as an umbrella, marketability due to restrictions, due to control rights, due to volume. . . .”); *see also id.* at 107.

⁵⁵ Because I find the KO Model is not appropriate here, I also give no weight to the testimony of TMSI's expert, Mr. Gkatzimas, who also applied the KO Model.

⁵⁶ March 25 Transcript at 73.

⁵⁷ March 25 Transcript at 73 (“Q Is the blockage method well known in the valuation industry? A. It's very well established. Q. Is it generally accepted in the valuation community? A. It's very well accepted in the valuation community.”).

The choice of the Blockage Method, as applied here, solves the above-identified problems with the KO Model. Specifically, it does not result in discounts over 100% or require the application of a second discount to locked tokens. Additionally, while Professor Howell critiques the manner in which Mr. Konstantinidis applied the blockage method, she does not question its appropriateness as a valuation tool. For these reasons, I find the Blockage Method to be the appropriate methodology for determining the value of the Tokens at issue. However, as I will explain below, there are problems with Mr. Konstantinidis' application of the Blockage Method that preclude me from adopting the discounts he suggests.

III. Flaws in the Application of the Blockage Method

While the Blockage Method appears to be better suited to the task at hand here, there are several problems with the manner in which Mr. Konstantinidis applied it to the facts of this case.

A. The Number of Liquidated Assets is Too Low

First, Mr. Konstantinidis only valued the Tokens held by his clients. He did not consider how the Debtors' holdings would impact the price of the Tokens at all.⁵⁸ Consequently, the input that Mr. Konstantinidis uses for total liquidated assets is far too low, which results in a value for the Tokens that is too high. As discussed above, any valuation here needs to consider the realities of the digital asset market in which it is taking place, which here means it must consider Debtors' holdings.

⁵⁸ March 25 Transcript at 167-68 (“Q. So your view is that you cannot have a universal discounted price for MAPS tokens, correct? A. Well, you can have a benchmark, you can make a decision on average, you can say -- you can have segments on different creditors and say, what is the average holdings that they have for MAPS and OXY and have a benchmark average discount. You can definitely do that. So it's a decision you can make. But to me, it doesn't make sense to assign a discount to a MAPS token because the creditors that have very few tokens that the market can absorb, they won't have a discount.”).

B. The Trading Volume Growth is Too High

The second problem with Mr. Konstantinidis' application of the Blockage Method here is his assumptions regarding trading volume growth. For the at-issue Tokens, Mr. Konstantinidis assumed growth levels of more than 850% for MAPS and OXY, and 20.9% for SRM in the first year after the bankruptcy.⁵⁹ These assumptions are much higher than is reasonable in light of the facts of this case.

Mr. Konstantinidis' growth assumptions were based on his analysis of the trade growth of 20 "peer tokens," or tokens that he perceived to be similar to the Tokens being valued here. Mr. Konstantinidis testified that he selected as peer tokens one that were "available in the Ethereum blockchain, were active for the last 5 years, were not stablecoins,⁶⁰ and had average daily volume in USD between \$1 million – \$30 million[.]"⁶¹ But a closer look suggests that the tokens that Mr. Konstantinidis used as "peer tokens" had very little in common with the Tokens at issue here.

For example, though Mr. Konstantinidis testified that he was careful not to choose stable coins as peer tokens because they would skew the results,⁶² two of the tokens he chose are in fact stablecoins.⁶³ Additionally, Mr. Konstantinidis testified that he only chose as peer tokens ones that were "relatively successful cryptocurrencies"⁶⁴ even though the evidence presented here

⁵⁹ March 25 Transcript at 182.

⁶⁰ "A stablecoin is a cryptocurrency with a value pegged to another asset's price. If functioning correctly, a stablecoin pegged to the U.S. dollar should always be valued at \$1." Michael Adams, "Different Types of Cryptocurrencies," *Forbes Advisor*, available at <https://www.forbes.com/advisor/investing/cryptocurrency/different-types-of-cryptocurrencies/>.

⁶¹ Konstantinidis Report at 22.; March 25 Transcript at 77.

⁶² March 25 Transcript at 136 ("I did not want them to be stable coins because they have a different nature. They pegged to a fiat currency, let's say, to the dollar, and on average, they have high volume and high volume growth, so I didn't want to bias my average.").

⁶³ See Rebuttal Report at 30 n.120 ("Mr. Konstantinidis includes gold-pegged stablecoins PAXG and XAUT as 'peer' tokens, even though his selection criteria purportedly exclude stablecoins. See MAPS 0000001.XLSX.").

⁶⁴ March 25 Transcript at 78.

suggests that the Tokens at issue were tied to projects that may have become defunct after FTX's collapse, rendering them unlikely to be successful in the short or long-term.⁶⁵ The fact that Mr. Konstantinidis did little analysis regarding the types of tokens to use as "peer tokens"⁶⁶ resulted in volume growth inputs that simply do not make sense.

C. The DLOM Models Used are Unreliable

The third problem with Mr. Konstantinidis' application of the Blockage Method is that the discount models he uses are unnecessarily limiting. Professor Howell testified that the DLOM models used by Mr. Konstantinidis (the Chaffe and Finnerty models) perform poorly at long time horizons:

[T]he DLOMs produced by the Finnerty model arbitrarily cannot go above approximately 32 percent, no matter the length of the non-marketability period or the characteristics of the asset at hand. Perhaps even more problematically, at long time horizons the Chaffe model implies that DLOMs decrease as the length of the non-marketability period increases, a clearly nonsensical result. Once combined into an average by Mr. Konstantinidis, these DLOM models result in DLOMs that *decrease* in the non-marketability period beyond an approximately five year horizon. Therefore, Mr. Konstantinidis' model in effect implies that assets that cannot be sold for 30 years are more valuable than assets that are only not marketable for 5 years.⁶⁷

As Mr. Konstantinidis acknowledged, neither of the models he employs produce an accurate result. Rather, one model overestimates the discount and the other underestimates it, which is why he averaged the results of the two.⁶⁸ Despite these admitted flaws, however, Mr. Konstantinidis did not cross-check his conclusions against a third model.

⁶⁵ Rebuttal Report at 5-14.

⁶⁶ March 25 Transcript at 183 (testifying that he did not do any analysis, but only confirmed that the peer tokens were not a part of the FTX holdings).

⁶⁷ Rebuttal Report at 46. Professor Howell did use the Finnerty model, along with the Ghaidarov model, to calculate a DLOM in her initial report. This is irrelevant, however, because I am not adopting the analysis contained in her initial report.

⁶⁸ March 25 Transcript at 106 ("I calculated the average [of the Chaffe and Finnerty Models], knowing that one of them overstates discount and the other understates discount").

When a third model is applied, we see that it produces similar numbers as the Chaffe and Finnerty models for short time horizons but produces very different numbers for long time horizons. Specifically, the third model, that put forward by Stillian Ghaidarov (the “**Ghaidarov Model**”), demonstrates a more logical result: that, contrary to what the Chaffe and Finnerty models suggest, discounts for unmarketable assets will continue to rise over time.⁶⁹

IV. Adjusting the Flawed Assumptions

To summarize where we are at this point – neither expert’s initial analysis correctly answers the question at hand. However, in her rebuttal report, Professor Howell performed several sensitivity analyses to Mr. Konstantinidis’ model, in which she applied the Blockage Method but corrected the problems identified above by changing three of the inputs. First, Professor Howell changes the total liquidated assets for each Token to include the Debtors’ holdings and not just the holdings of the Objectors. Second, she changes the volume growth so that instead of projecting an increase in trading volume growth after the Petition Date, volume remains constant at the initial level.⁷⁰ Last, Professor Howell uses the Ghaidarov Model as the discount model

⁶⁹ See Rebuttal Report, Figure 12 (demonstrating that the Chaffe and Finnerty models have peak discounts at the five-year point, while the Ghaidarov model has discounts continuing to rise over time); *Id.* at 48 (“As I show in Figure 12, the Ghaidarov model behaves as expected at multi-decade time horizons, while providing similar DLOM values as the average of the Chaffe and Finnerty models at short horizons.”) (citing Ghaidarov, Stillian, “Analysis and Critique of the Average Strike Put Option Marketability Discount Model,” *Working Paper*, 2009, p. 20.).

⁷⁰ One of Professor Howell’s alternate scenarios also changes the initial volume input used by Mr. Konstantinidis. However, I find that because Professor Howell excluded certain exchanges, her initial volume calculations are likely too low. See March 25 Transcript at 97 (Mr. Konstantinidis testifying that Professor Howell’s exclusion of the LBank exchange materially skews the discount). See also March 20 Transcript at 207-08 (Professor Howell testifying that she excluded LBank based on Mr. Lu’s recommendation but performed no analysis regarding the exchange herself). I have therefore only considered the scenarios in which Professor Howell uses Mr. Konstantinidis’ initial volume inputs. See Rebuttal Report, Exhibit 9.

instead of averaging the results of the Chaffe and Finnerty models. The resulting changes to the discounts are as follows:⁷¹

	Discount Originally Proposed by Konstantinidis	Discount Proposed by Howell Sensitivity Analysis
MAPS	43-45%	100%
OXY	35-36%	99.9%
SRM	45-46%	18.6%

Given all the evidence before me, I am persuaded that the discounts contained in Professor Howell's sensitivity analyses are reasonable. Accordingly, the estimated value of the Tokens will therefore be determined by applying the following discounts to the market price⁷² of each Token:

<u>Token</u>	<u>Discount for Lack of Marketability⁷³</u>
MAPS	100%
OXY	99.9%
SRM	18.6%

⁷¹ Rebuttal Report at 48 and Exhibit 9. While Professor Howell notes that these discounts would only represent a DLOM and not an ALD (which she suggests would further increase the discounts), as I discussed above, I am persuaded that the DLOM that results from application of Mr. K's approach accounts for both a lack of marketability due to locking and a lack of liquidity due to an increase in trading volume and/or the circulating supply. As such, it is not necessary to consider an ALD in addition to the DLOM.

⁷² This discount should be applied to the market prices used by Mr. Konstantinidis, as I am persuaded that his process for determining market price as of the Petition Date was more reliable than that offered by the Debtors' expert, Mr. Lu. See March 25 Transcript at 73-74 and 89-91 (testifying that the one-hour time period used by Mr. Lu, along with his exclusion of certain exchanges, renders his prices too low).

⁷³ Rebuttal Report at Exhibit 9. These discounts are reflected at Row 11, Column I on each of Exhibit 9A, 9B, and 9C.

In adopting a valuation that effectively estimates the values of two out of the three Objectors' holdings at nothing, I am cognizant of the Objectors' argument that such a valuation is in tension with the fact that the Tokens had a positive trading price on the Petition Date. Specifically, the Objectors argue that if a Token is listed on the applicable exchanges as having a positive trading value on the Petition Date, then selling that Token must result in some number above zero. While this is generally a logical assumption, and a correct one in many cases, it is not necessarily correct here, where the evidence suggests that the market prices for these Tokens may not be a reliable indicator of their actual value.

Debtors hold more than 99% of the total supply of MAPS, over 97% of the total supply of OXY, and over 95% of the total supply of SRM. Common sense dictates that the fact that the Debtors hold all but a few of the Tokens here gives them enormous control over the price.

Professor Howell explains:

For each of the at-issue tokens, observed market prices are derived from a free float (the amount of tokens actually available for trading in the marketplace) of *less than three percent* of the tokens' maximum supply. Observers have argued that restricting the free float for the at-issue tokens was a deliberate strategy for FTX and Alameda to inflate the market prices of the at-issue tokens, and in turn inflate the value of FTX's and Alameda's balance sheets. Mr. Bankman-Fried had also commented that a strategy of allowing only a very small free float relative to the maximum supply of a token would enable the creator of the token to artificially inflate the trading price of the token and thus create collateralizable "value" for holders of the uncirculated tokens, even if the true value of the token were zero. The at-issue tokens appear to be consistent with this strategy, which undermines the idea that the broader holdings of the at-issue tokens could be valued at the observed prices of a small number of tradeable tokens.⁷⁴

⁷⁴ Rebuttal Report at 6.

While there is no evidence in the record that would allow me to make any conclusions regarding what FTX or its executives intended to accomplish in holding the vast majority of the at-issue Tokens, I need not understand the intent behind this decision in order to see its consequence. The simple fact that the Debtors held nearly all of the supply of the Tokens at issue had the effect of keeping trading volume low and, quite possibly, keeping prices artificially high.⁷⁵

Although the Objectors tout the market price as evidence that the Tokens must have a value above zero, they offered no evidence to counter the above testimony. On the contrary, Mr. Konstantinidis admitted that he gave no consideration to the fact that Debtors hold the vast majority of the Tokens.⁷⁶ Accordingly, because the only evidence in the record before me supports the conclusion that the market price of the at-issue Tokens may not be a reliable indicator of their value here, I am not constrained by that price in estimating their value.

⁷⁵ See March 25 Transcript at 45 (“The face value of the Debtors' holdings, using petition date prices, is misleading because it’s based on circulating tokens that represent just one to two percent of total token supply.”). See also Rebuttal Report at 13 (“A number of observers have argued that when only a minuscule share of tokens are traded in markets (*i.e.*, a tiny circulating float), it is inappropriate to apply the market price to the remaining tokens that are locked up or otherwise not circulating.”). See also March 20 Transcript at 207 (Objectors’ counsel questioning Professor Howell) (“Q: Now, you agree that it certainly is a strategy for increasing prices to sell individual assets by restricting quantities traded to no more than five or ten percent of daily volume, right? A I believe that was one of Mr. Sam Bankman-Fried's strategies; that's the only place I've come across it in this context. Q But you agree that that's a strategy to potentially increase prices, right? A Yes.”).

⁷⁶ March 25 Transcript at 83 (“Did your valuation analysis for MAPS Vault consider other parties holdings of the rest of the supply of those tokens? A: No, I didn’t. Q Why not? A Well, I mean its best practice in valuation methodology that you give me the holdings and I value those holdings. I don’t take into account other investors. I don’t take into account the total supply. I just value those holdings.”); March 25 Transcript at 88 (“[T]he task at hand is to value those holdings and that's what I do, normally, in all of my valuation projects. I don't go and try to understand other investors and what they hold. I just value the At-Issue Tokens.”).

CONCLUSION

For the reasons stated above, the value of the Digital Asset Claims will be estimated by applying a discount to the market prices of 100% to MAPS tokens, 99.9% to OXY tokens, and 18.6% to SRM tokens.

It is SO ORDERED.

Dated: June 26, 2024



JOHN T. DORSEY, U.S.B.J.